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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/693,728	10/27/2003	Tatsuya Fukunaga	117600	2392
25944	7590	03/28/2006	EXAMINER	
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			LEE, BENNY T	
			ART UNIT	PAPER NUMBER
			2817	

DATE MAILED: 03/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/693,728	<b>Applicant(s)</b> FUKUNAGA, TATSUYA	
	<b>Examiner</b> Benny Lee	<b>Art Unit</b> 2817	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 19 December 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-5 and 7-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 9-12 is/are rejected.
- 7) ☒ Claim(s) 4,5,7 and 8 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)     | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 19 December 2005 has been entered.

The disclosure is objected to because of the following informalities: For the specification description of each drawing figure, note that all reference labels therein should be correspondingly described relative to that figure's specification description. For the description of multiple figures (e.g. figs. 1-3, etc) the reference labels therein should be reference to those drawing figures in which they actually appear (unless they appear in each one of the multiple drawing figures). The examiner suggests that if applicants' make the following insert, most of the objections raised herein would be resolved: at page 12, line 1, after "drawings" inserted should be --, where like features appearing in different drawing figures are denoted by like reference numerals and may not be described in detail for all drawing figures in which they appear--. However, if a reference feature is unique to a particular figure, it should be explicitly reference such drawing figure in the specification description. Appropriate correction is required.

The amendment filed 2 June 2005 remains objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: In the replacement paragraph to page 21, line 21, sixth line therein, the change to --lowered-- from the originally recited "increased" appears to

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provide a diametrically opposite meaning from what was originally disclosed and thus raises the issue of “new matter”.

Applicant is required to cancel the new matter in the reply to this Office Action, unless applicants’ can explain why this diametric change is not “new matter” and provide an indication as to where support for this limitation can be found in the original disclosure.

Claims 3, 9, 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 3, last paragraph therein, note that the recitation therein appears to be redundant since a corresponding limitation already appears in amended claim 1. Clarification is needed.

In claim 9, note that it is unclear how the “three or more ground planes” is intended to be related to the “at least two ground electrodes” as recited in claim 1, from which this claim directly depends (e.g. same as, different from, etc). Clarification is needed.

In claims 9, 10, note that it is unclear whether the “line pattern of the first waveguide” being “conductively connected to the ground electrode between neighboring propagation regions of the second waveguide” is properly dependent from the limitation recited in claim 1, (from which these claims ultimately depend) where the “line pattern” is connected to “one of the ground electrodes of the second waveguide”. Clarification is needed

The following claims have been found objectionable for reasons set forth below:

In claim 1, penultimate line, note that --said-- should be inserted prior to “another” for an appropriate characterization.

In claim 4, line 2, note that “made” should be deleted as being unnecessary and “formed” should be rewritten as --disposed-- for clarity of description.

In claim 5, line 3, note that --between the plurality of penetrating conductors-- should be inserted prior to “and” for consistency of claim terminology; line 4, note that --plurality of-- should precede “penetrating” for consistency of description.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3, 11 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Stones et al or Deslandes et al (both of record).

Stones et al (Fig. 3) discloses an RF module comprising: a first waveguide (i.e. microstrip line 514) having a line pattern conductor (524) and an inherently underlying ground plane for propagation in a TEM mode; a second rectangular waveguide (512) having upper and lower metal surfaces or electrodes electrically connected to each other and configured for propagation in a non-TEM mode. Note that the electrodes (516, 518) are configured into a vertical “stacking” direction and that line pattern conductor (524) is directly connected to electrode (516) in a direction orthogonal to the stacking direction. Moreover, since the configuration of the waveguides in Stones et al matches the configuration of applicants’ waveguides, the field configurations in Stones et al inherently must be the same as though in applicants’ invention, by virtue of their like configurations.

Deslandes et al (Fig. 1) discloses an RF module comprising : a first waveguide (i.e. a microstrip line) having a line pattern conductor and an underlying ground plane conductor or electrode to define a quasi-TEM mode of transmission; a second rectangular waveguide having upper and lower electrodes and opposing side electrodes connecting the upper and lower electrodes such as to define a non-TEM mode of operation electrodes for the second waveguide. Note that the upper and lower electrodes are oriented in a vertical “stacking” direction and that the line pattern conductor of the microstrip line is directly connected to the upper electrode of the rectangular waveguide. Moreover, as is evident from Fig. 2, the electric field patterns of the microstrip line and the rectangular waveguide have the same orientation and profile, thereby providing a “match” with each other for transition purposes between the microstrip line and the rectangular waveguide.

Claim 2 is rejected under 35 U.S.C. 102(b) as being clearly anticipated by Deslandes et al (of record).

Note that the rectangular waveguide of Deslandes et al operates in a  $TE_{10}$  mode.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Deslandes et al (of record).

Deslandes et al discloses the claimed invention except for the recitation of multiple modes.

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Although the primary mode of propagation in Deslandes et al is the  $TE_{10}$  mode, clearly one of ordinary skill in the art would have found it obvious to have optimized the dimensions of the waveguide such as to have permitted additional propagating modes within the waveguide.

Claims 9, 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stone et al or Deslandes et al in view of Takenoshita et al (all of record).

Stones et al or Deslandes et al each disclose the claimed invention except for the second waveguide having plural propagating regions.

Takenoshita et al discloses a multi-layer stacked waveguide of type disclosed in either Stones et al or Deslandes et al. In particular, note that such a waveguide is configured to have branched propagating regions.

Accordingly, it would have been obvious in view of the references, taken as a whole, to have modified the waveguide of either Stones et al or Deslandes et al to have been a branched waveguide structure as exemplarily taught by Takenoshita et al. Such a modification would have been deemed obvious in view of the same field of endeavor of the references (i.e. both pertain to stacked dielectric waveguide structures), thereby suggesting the compatability of the combination.

Applicant's arguments with respect to claims 1, 4, 5, 6, 8-12 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's arguments filed 19 December 2005 have been fully considered but they are not persuasive.

With regard to the "new matter" objection, applicants' have asserted that the subsequent sentence in the paragraph having the objectionable amendment supports that the amendment was

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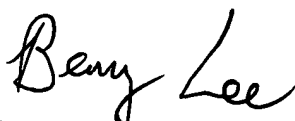
merely a correction of an inadvertent error, and thus the "new matter" objection should be removed.

Upon a further review of the paragraph in question, the examiner must respectfully disagree with applicants' assertion. Note that the subsequent sentence discusses adding further through holes 37 to decrease the coupling. However, it is unclear how this would relate to the previous sentence, which pertains to just one through hole 37, and more importantly whether that is an indication of whether the original limitation of the coupling being "increased" would have in error. If applicants' maintain the original recitation was in error, then a further explanation is required to establish such a situation. Absent such further clarification, the "new matter" objection is sustained.

*m* Claims 4, 5, 7, <sup>8</sup> are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication should be directed to Benny Lee at telephone number (571) 272-1764.

B. Lee

  
BENNY T. LEE  
PRIMARY EXAMINER  
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